

- b. transmitting an RF signal from the selected HEU to the railcars;
- c. receiving the RF signal at a first railcar;
- d. receiving the pneumatic pressure pulse at the first railcar;
- e. transmitting an RF message from the first railcar to the HEU indicating the position of the first railcar;
- f. receiving the RF signal from the first railcar at a second railcar;
- g. receiving the pneumatic pressure pulse at the second railcar;
- h. transmitting an RF message from the second railcar to the HEU indicating the position of the second railcar; and
- k. for each remaining railcars successively:
- (1) receiving at least one RF signal from another railcar announcing the transmitting railcar's relative position;
  - (2) receiving the pneumatic pressure pulse;
  - (3) determining the relative position of the railcar as a function of the time between the receipt of the pneumatic pulse and the receipt of the immediately preceding RF message from another railcar;
  - (4) transmitting the determined relative position of the railcar to the HEU.

29. (Amended) In a train comprising at least one head end unit (HEU) and plural railcars, where the HEU and railcars are coupled together through a pneumatic brake pipe and each railcar and HEU contains a communication unit for sending and receiving electrical signals, a method of determining the relative position of each railcar in the train comprising the steps of:

(a) transmitting a pneumatic pulse from the HEU to each railcar through the brake pipe;

(b) transmitting an electrical signal from each railcar to the other railcars and HEU upon receipt of the pneumatic pulse; and

(c) determining the relative position of each railcar in the train as a function of the difference in time between receipt of the pneumatic pulse and the electrical signal from another railcar.

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CMB.  
sub. C1  
41. (Amended) In a method of determining the relative position of plural railcars in a train having at least one head end unit ("HEU") where the HEU and all of the railcars are connected by pneumatic and wireless communication systems, the improvement wherein each railcar determines its relative position in the train from the difference in time between the receipt of a pneumatic signal originating from the HEU and the receipt of a wireless signal from the immediately preceding railcar.

sub. C1  
PH  
cont.  
43. (Amended) In a method of determining the relative position of plural railcars in a train having at least one head end unit ("HEU") where the HEU and all of the cars are connected by a common pneumatic communication system and where the HEU and each of the railcars is connected to a plurality of the railcars by a wireless communication system, the improvement wherein each railcar determines its relative position in the train using the time of receipt of the signal received over the wireless communication system in closest proximity to receipt of a pneumatic signal.

44. (Amended) In a train comprising at least one head end unit (HEU) and a plurality of railcars connected by a pneumatic brake pipe and an electrical

communications link with each railcar in the train and the HEU, a method of determining the order of the railcars comprising:

a. transmitting a pneumatic pressure pulse along the brake pipe so as to travel in sequence to each railcar of said plurality of railcars;

b. receiving the pneumatic pressure pulse at the railcars in the train;

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cont. c. transmitting an electrical signal from each of the plurality of railcars indicative of the time at which the pneumatic pressure pulse was received at the respective rail car; and

d. determining the order of the railcars in the train based on the time of receipt of the electrical signals.

Sub C1 52. (Amended) In a train comprising at least one head end unit (HEU) and a plurality of railcars connected by a pneumatic brake pipe and an electrical

communications link with each railcar in the train and the HEU, a method of determining the order of the railcars comprising:

a. transmitting a first electrical signal from the HEU to the plurality of railcars announcing the transmission of a pressure pulse along the brake pipe ;

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cont. b. transmitting a pneumatic pressure pulse on the brake pipe to the plurality of railcars, wherein the pneumatic pressure pulse is received at each of the plurality of railcars after receipt of the first electrical signal;

c. transmitting a second electrical signal from each of the plurality of railcars indicative of the time at which the pneumatic pressure pulse was received at the respective rail car the transmitting rail car;

B5  
cont.

d. determining the order of the railcars in the train based on the time of receipt of the second electrical signals.

sub. C1

54. (Amended) The method of Claim 52 wherein the second electrical signal is indicative of a unique address assigned to each railcar based on the time at which the pneumatic pressure pulse reached the transmitting rail car.

B6

55. (Amended) The method of Claim 52 wherein the second electrical signal comprises a unique address indicating the position of the railcar in the train, and wherein the second electrical signal is received by at least one other of the plurality of railcars for use in determining the position of the receiving railcar in the train.

sub. C1

57. (Amended). In a train comprising at least one head end unit (HEU) and plural railcars connected by a pneumatic brake pipe and an electrical communications link, a method of determining the relative order of the railcars in the train comprising the steps of:

- B1  
cont.
- a. transmitting a first electrical signal announcing a transmission of a pressure pulse along the brake pipe to the railcars;
  - b. transmitting a pneumatic pressure pulse along the brake pipe to the plurality of railcars, with each railcar receiving the pneumatic pulse at a different time from that of the other railcars in the train, with said time being later than that of the preceding railcars and earlier than that of successive railcars;
  - c. transmitting a sequence of second electrical signals from the railcars, with one of said second electrical signals being transmitted for each railcar upon receipt of the pressure pulse at that respective railcar; and